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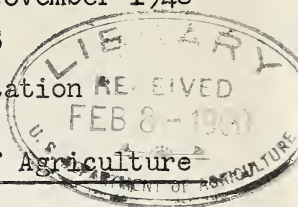
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SOUTHERN FORESTRY NOTES

Southern Forest Experiment Station  
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FOREST SURVEY OF ARKANSAS OZARKS COMPLETED

Forests cover 6 million acres in the Arkansas Ozarks--60% of the land. Two-thirds of the timber stands are understocked, and the saw timber, once among the finest in the country, is now mostly in small trees and often too scattered for logging. The Southern Forest Survey, in its first cruise of the 24 Arkansas Ozark counties, found that the upland hardwood and hardwood-pine types make up 79% of the forest. The shortleaf pine type includes 12%, bottomland hardwood 5%, and eastern redcedar 4%. More than half of the forest acreage is in cordwood stands, 31% more is below cordwood size, and only 17% is in saw-timber stands.

Total growing stock volume, half of it in cordwood-size trees, is 1,667 million cu. ft., or 273 per acre. The volume per acre is greatest in the shortleaf pine and bottomland hardwood types. Black-oak and other red oak species make up 30% of the total, white oaks 23%, other hardwoods--mainly hickory and gum--30%, shortleaf pine 16%, and cedar and cypress 1%. In addition to growing stock, there are 1,191 million cu. ft. of wood in cull trees--nearly 3/4 as great a volume as the growing stock. Sawlog growing stock is 5,434 million bd. ft., or 889 per acre. It is 35% red oaks, 22% white oaks, 29% other hardwoods, and 14% softwoods. Nearly half of the sawlog volume is in cordwood and smaller stands, and quality is poor. Grade 3 logs make up 3/4 of the hardwood sawlog volume and half of the softwood volume is in rough trees.

Of the net growth of 83,700,000 cu. ft. per year, 60% is being added in trees of cordwood size. Sawlog growth is 302,500,000 bd. ft. yearly, or 49 per acre.--William A. Duerr.

## INFLUENCES ON REDCEDAR DISTRIBUTION IN THE OZARKS

Fire and competition, and not a preference for shallow soils and rough topography, explain why eastern redcedar (Juniperus virginiana L.) occupies the poorest forest sites in the Ozarks today.

Fire is the tree's worst enemy. The bark is so thin--a single thickness is seldom over 0.3 inch--that one ground fire usually kills even the older trees. Moreover, redcedar does not sprout. Once a stand is killed, reproduction must be from seeds scattered by birds and animals that eat the redcedar berries for winter food. On rough, stoney land, redcedar escapes fire damage because vegetation is too scarce to supply much fuel (redcedar litter does not burn readily). Hence, fires are infrequent and those that do start do not spread easily.

While its shallow, fibrous root system and resistance to drought allow redcedar to live on the poorest sites, its growth there is much less than on deep soils. On soil less than 12 inches in depth, even though there is little or no competition from other species, redcedar seldom grows taller than 20 to 30 feet. Fence posts are about the only useful product. On soils from 12 to 24 inches deep, redcedar may grow to 40 feet in height and yield one or two small 8-foot sawlogs. Its best growth is on well-drained, alluvial soils and on upland soils more than 24 inches deep; but here it is crowded by hardwoods and frequently killed by fire.

Observations do not support the popular belief that redcedar prefers alkaline sites. It is one of the first tree species to invade abandoned fields, which in the Ozarks generally have acid soil. Many young stands of saplings and pole-sized trees are found on acid soil. Commonly, however, the soil under redcedar sawlog stands is neutral or alkaline. The reason appears to be that redcedar foliage is naturally high in lime, and, where large amounts of foliage are added to soil, a neutral to alkaline reaction results:--John L. Arend.

## STORING SOUTHERN PINE PLANTING STOCK

Most forest nurseries ship southern pine seedlings in open-ended burlap bales. In cool weather, seedlings may be stored safely in these bales for a week or two, provided the bales are kept moist inside and are not left in compact piles long enough to heat.

Heeling-in the seedlings in moist soil ordinarily will preserve them for a month without loss. The main precaution is to pack the earth firmly about all seedlings to a point definitely above the root collars, but never more than a quarter way up the tops.--Philip C. Wakeley.

## COST OF GIRDLING LOW-GRADE HARDWOODS

The costs of cutting or girdling unmerchantable and low-grade hardwoods that overtop young pines are much less than most landowners realize. The table, based on data collected on the Crossett Experimental Forest, gives the cost for trees of various sizes. It allows 60¢ per hour for labor and 19.8¢ per hour extra for supervision, transportation (4.7¢ per hour), equipment, Social Security, workmen's compen-

D.b.h. (Ins.)	Cost \$	D.b.h. (Ins.)	Cost \$	sation, and unemploy- ment insurance. Trees under 6 inches d.b.h. were chopped down. Larger ones were gir- dled by encircling them with 2 rows of ax cuts and prying out the chips. The girdles were 3 in- ches wide and about 3 feet above the ground.
1	0.001	10	0.038	
2	.003	11	.042	
3	.006	12	.047	
4	.010	13	.051	
5	.014	14	.055	
6	.022	15	.060	
7	.026	16	.064	
8	.030	17	.069	
9	.034	18	.074	

As young shortleaf and loblolly pines usually outgrow sprouts from cut or girdled overtopping hardwoods, most areas need be treated only once. In 1939, at Crossett, all hardwoods were cut from one stand of natural pine seedlings while small overtopping hardwoods were left in an adjacent stand. In 7 years the released pines produced  $1\frac{1}{2}$  cords of

pulpwood per acre, the other stand only 0.1 cord. The present cost of cutting and girdling the hardwoods would be \$1.79 per acre. The stumpage value of the 1½ cords of pulpwood more than offsets this cost already, and the stand is only just beginning to produce.--S. F. Clark and H. L. Williston.

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\* Copies are available at the Southern Station.